

**STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY**

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| IN THE MATTER OF APPROVING AN AIR |) | NOC APPROVAL ORDER |
| EMISSIONS NOTICE OF CONSTRUCTION |) | NUMBER: DE01NWP-003 |
| APPLICATION FOR AIR POLLUTANT |) | |
| EMISSIONS FROM THE CONCRETE BATCH |) | |
| PLANT FOR THE WASTE TREATMENT AND |) | |
| IMMOBILIZATION PLANT FOR THE |) | |
| DEPARTMENT OF ENERGY-OFFICE OF |) | |
| RIVER PROTECTION |) | |

To: Mr. James E. Rasmussen, Director
Environmental Management Division
United States Department of Energy
Office of River Protection
P.O. Box 450, MSIN: H6-60
Richland, Washington 99352

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FINDINGS:

On May 31, 2001, the United States Department of Energy, Office of River Protection (DOE-ORP), submitted a Notice of Construction (NOC) application for air pollutant emissions from the Waste Treatment and Immobilization Plant (WTP) Concrete Batch Plant (CBP), located east of the Hanford site's 200 East Area, and a quarry operation, located west of the 200 East Area.

In relation to the above, the Department of Ecology, State of Washington, pursuant to RCW 70.94.152, WAC 173-400, and WAC 173-460 makes the following determinations:

1. The proposed project, if constructed and operated as herein required, will be in accordance with applicable rules and regulations, as set forth in Chapter 173-400 WAC and 173-460 WAC, and the operation thereof, at the location proposed, will not result in ambient air quality standards being exceeded.
2. The proposed project, if constructed and operated as herein required, will provide all known, available, and reasonable methods of emission control.

A. LAWS AND REGULATIONS

All proposed activities associated with the construction and operation of the concrete batch plant and quarry by DOE-ORP, referred herein to as the permittee, shall comply with all applicable requirements as specified in:

- RCW Chapter 70.94, Washington Clean Air Act
- WAC Chapter 173-400, General Regulations for Air Pollution Sources
- WAC Chapter 173-460, Controls for New Sources of Toxic Air Pollutants

B. EMISSIONS

The facility will produce up to the following estimated controlled emissions, including fugitive emissions:

Particulate Matter (PM-10)

| | |
|----------------------|-----------------|
| Concrete Batch Plant | 15.89 tons/year |
| Quarry | 10.60 tons/year |

- C. **BACT** -- WAC 173-400-113 requires the use of Best Available Control Technology (BACT) to control emissions. The project will use the following technologies and procedures to attain BACT for particulate matter:

Storage Piles - Storage piles shall be consolidated if possible. The piles shall be located such as to minimize front-end loader travel. Water spray shall be applied to the storage piles.

Sand and Aggregate Transfer to Storage Piles - If the front-end loader is transporting dry material, water spray shall be applied to the transfer points at the front-end loader and conveyor.

Cement Transfer to Silo - Silo exhaust shall be controlled by a properly designed and operated fabric filter device (bag-house).

Hopper/Batcher - The hopper/batcher shall be enclosed and vented to a properly designed and operated fabric filter control device (bag-house).

Plant Mixer Charging Station - The station shall be partially enclosed. Suction from the enclosure shall be routed to a properly designed and operated bag-house. If visible emissions escape the enclosure, water fog spray shall be used to control these emissions.

- D. **T-BACT** -- WAC 173-460-040(4)(b) requires the use of Best Available Control Technology for Toxics (T-BACT) to control toxic emissions. The source is not projected to emit toxic air pollutants.

ADDITIONAL FINDINGS:

The Concrete Batch Plant (CBP) will be located on the River Protection Project-Waste Treatment Plant (RPP-WTP) site just east of the 200 East Area on the DOE Hanford Site. The quarry pit commonly referred to as Pit 30 is just west of the 200 East Area.

The quarry operation will begin in October 2001. Erection of the CBP will begin sometime in January 2002.

The CBP will receive, store, convey, measure, and mix concrete materials, and discharge batched concrete mixtures into special purpose concrete delivery vehicles for transport to the RPP-WTP construction site, which is also located at the DOE Hanford Site. Aggregate from the quarry pit (Pit 30) located just west of the 200 East Area will be the primary, although not exclusive, source for the project. The aggregate from the Pit 30 quarry will be excavated by power shovel or front-end loader and moved to the processing area for crushing, screening, size classification, and stockpiling. The concrete will consist of sand, gravel, crushed stone, or iron blast furnace slag, and cement. Aggregate materials from Pit 30 will be moved to the CBP, stockpiled and transferred into elevated bins using a conveyor or bucket elevator. The cement will be delivered to the CBP, and then pneumatically transferred to an elevated storage silo. From the elevated bins, the constituents will be gravity or screw conveyor fed to weigh hoppers prior to being mixed with water to produce concrete. The concrete will be loaded into trucks for transport to the WTP facility locations for placement.

The aggregate from the quarry will also be processed and used as roadway materials and for site grading needs at the RPP-WTP construction site before, during, and after concrete production. This will occur through the duration of construction on the WTP.

1. PROCESS DESCRIPTION

Concrete Batch Plant - The CBP will provide concrete for construction of the RPP-WTP and will be fully operational for the first two years of construction activities. It will consist of two portable batch plants, one with a maximum capacity of 300 cubic yards per hour and one with a maximum capacity of 175 cubic yards per hour. The combined maximum output of the CBP will be 475 cubic yards per hour. Initially, and early in the schedule, both batch plants will be needed to meet the high demands for concrete production. After approximately 17 months (80 percent of the total concrete to be placed during construction) the larger of the plants will be dismantled and the smaller plant will operate at a reduced capacity as demand decreases.

Quarry and Aggregate Processing - The aggregate from the Pit 30 quarry will be excavated by power shovel or front-end loader and moved to the processing area for crushing, screening, size classification, handling, and stockpiling. The aggregate will be dumped into a hoppersed feeder, usually a vibrating grizzly type, or onto screens. The feeder or screens separate large boulders from finer rocks that do not require primary crushing, thus reducing the load to the primary crusher. Jaw, impactor, or gyratory crushers are usually used for initial reduction. The crusher product, normally 3 to 12 inches in diameter, and the undersized material passed through the grizzly screen will be discharged onto a conveyor belt and conveyed to a surge pile.

The stone from the surge pile will be conveyed to a vibrating inclined screen called a scalping screen. Some of the undersized material passed through the scalping screen will be stockpiled and used as product in the batch plant and some will be sent to a tertiary circuit. The larger aggregate will be processed through a secondary crusher to reduce the stone to about 1 to 4 inches in diameter. The output from the secondary crusher and the aggregate

passed through the scalping screen not stockpiled for use at the batch plant will be conveyed to a tertiary circuit. The tertiary circuit is similar with the final product reduced to 3/16 to 1 inch in diameter. The final aggregate product will be moved to the batch plant by truck, stockpiled, and transferred to elevated bins.

2. EMISSIONS CONTROL SYSTEMS

Bag-house (Fabric Filter)

Bag-houses consist of fabric bags that collect particles in the gas stream. The particulate-laden gas is directed through a cylindrical fabric bag. The particles are trapped on the surface of the bags, which are rapped or blown clean periodically, based on operating conditions (such as, pressure drop). Bag-houses are not suitable for wet environments, as the moisture causes clogging of the fabric filter. In the event of fiberglass being used for the bag material, the maximum operating temperature is 550 °F.

The bag-houses will be configured to control the following emission sources:

- Cement tanker unloading to the silo
- Cement weigh hopper
- Material transfer into the mixer

To detect bag failure, the pressure drop across the bag-houses will be monitored using a magnehelic differential pressure gauge, or equivalent. The bag-houses will be operated on a timer to run only during the plant operating hours.

Water Spray

Water spray is used to control dust and particulate emissions from the quarry and aggregate processing (crushers, screening, unloading transfers), and CBP sand and aggregate transfer areas that cannot be captured or enclosed, and from vehicles traveling on paved and unpaved roads. Water spray obtains a control efficiency of approximately 70% (EPA 1999).

Water spray will be used to control emissions from the following sources:

- Aggregate processing at the quarry (crushers, screening, material transfers)
- Stockpiles of aggregate materials
- Sand transfer to the feed hopper
- Aggregate transfer to feed hopper
- Sand transfer to conveyor
- Aggregate transfer to conveyor
- Aggregate stockpiles
- Stockpile loader
- Unpaved roads (chemical dust suppression may be used in addition to water spray)

Enclosures

Enclosures are used to keep the dust and particulate in a closed area so that the emissions may settle instead of being released to the atmosphere. They are also used for weather protection. For a CBP, enclosures are used for situations in which a smaller area may be placed inside a structure, such as for sand and aggregate transfer to bins. Enclosures provide for a control efficiency of 80% (EPA 1999).

Metal enclosures will be used to control emissions from the following sources:

- Sand transfer to bins
- Aggregate transfer to bins

Conveyors will transfer the sand and aggregate materials from feed hoppers directly into a metal enclosure where the material will be dumped into bins located within the metal enclosure.

THEREFORE, IT IS ORDERED that the project as described in said Notice of Construction Application (NOC), and more specifically detailed in plans, specifications, and other information, submitted to the Department of Ecology in reference thereto, is approved for construction, installation, and operation, provided the following conditions are met:

APPROVAL CONDITIONS:**1. TOTAL EMISSION LIMITS**

- A. Particulate Matter - Particulates from the bag-house exhaust shall not exceed 0.01 grains per dry standard cubic foot, with no visible emissions. Engineering calculations or vendor information that the bag-house, when properly operated and maintained, will control emissions to less than 0.01 grains per dry standard cubic foot will be available at the facility. Periodic measurements shall consist of visible emission inspections per EPA Reference Method 22, Title 40 Part 60, Appendix A, July 1, 2000.
- B. Fugitive Dust - Visible emissions from the sand and aggregate transfer points, truck loading station, the piles, or any other source shall not be allowed beyond 100 yards as measured by EPA Reference Method 22, Title 40 Part 60, Appendix A, July 1, 2000.

2. INTERLOCKS

- A. An electrical interlock, or some other fail safe device, or an operational requirement as specified in the Operations and Maintenance (O&M) Manual, shall be in place to prevent cement truck charging operations or hopper/batcher processing, in the event that the bag-house blower is not running due to mechanical problems or operational error.
- B. The cement silos shall have a level indicator, or an alarm, or an administrative inventory requirement as specified in the O&M Manual, in place to prevent the silo from overflowing into the bag-house.

3. FUGITIVE DUST

All unpaved areas at the CBP and quarry will be controlled by watering or chemical stabilization, or both. Means of chemical stabilization include the application of petroleum resins (EPA 1998). A water spray additive, (such as, "soil cement") will also be considered for application on unpaved roads. Soil cement has been previously used on the Hanford Site with effective results.

Vehicle speed limit signs will be posted to control speeds. Paved roads between the quarry and CBP will be kept clear of heavy accumulations of dust and debris. Front-end loaders will be used to pick up any significant spills of sand or aggregate material on the paved roads between the quarry and CBP. The sand and aggregate stockpiles will be kept sprinkled with water to prevent the movement of materials that may migrate because of wind erosion. Transfer points at conveyors, crushers, and screens will also be sprayed with water.

4. EMISSION CONTROL MONITORS

Emission equipment control monitors shall include but not be limited to the following:

- A. Bag-house – None required if there are no visible emissions per section 1.A. of the APPROVAL CONDITIONS, and maintenance records indicate proper maintenance practices and schedules.

5. MANUALS

Site specific O&M manuals for all equipment that has the potential to affect emissions to the atmosphere shall be developed and followed. Manufacturer's instructions may be referenced. A copy of the O&M manual shall be available on site prior to the end of the two (2) month testing and break-in period allowed by this order. The O&M manual shall be updated to reflect any modifications of the plant or operating procedures. Emissions that result from failure to follow the requirements of the O&M manuals or manufacturer's instructions may be considered proof that the equipment was not properly operated, maintained and tested. Regular maintenance records shall be kept at the facility. These instructions and maintenance records shall be available for inspection by Ecology, organized in a readily accessible manner, and retained for at least ten (10) years. The O&M manuals shall at a minimum include:

- Normal operating parameters for the control systems
- A maintenance schedule for the control systems
- Monitoring and record keeping requirements
- A description of the monitoring procedures
- Actions for abnormal control system operations

6. INITIAL NOTIFICATIONS & SUBMITTALS

All notifications and submittals required under these Approval Conditions shall be sent to:

Washington State Department of Ecology
Nuclear Waste Program
1315 West Fourth Avenue
Kennewick, Washington 99336-6018

7. TESTING

Opacity readings as measured according to 40 Code of Federal Regulations, Part 60, Appendix A, Method 9 (July 1, 1991), shall be conducted during the initial compliance inspection by Ecology.

8. GENERAL CONDITIONS

- A. **Visible Emissions:** No visible emissions shall be allowed beyond 100 yards of source. During periods of high winds, an assessment shall be made to suspend operations or initiate a more comprehensive plant watering scheme.
- B. **Commencing/Discontinuing Construction and/or Operations:** This approval shall become void if the proposed activities are not commenced within eighteen (18) months after receipt of this Order approving the NOC Application, or if activities are discontinued for a period of eighteen (18) months.
- C. **Compliance Assurance Access:** Access to the source by EPA or Ecology shall be allowed for the purposes of compliance assurance inspections. Failure to allow access is grounds for revocation of the Order approving the NOC.
- D. **Modification to Facility or Operating Procedures:** Any modification to any equipment or operating procedures, contrary to information in the NOC Application, shall be reported to Ecology at least sixty (60) days before such modification. Such modification may require a new, or amended, NOC Approval Order.
- E. **Activities Inconsistent with this Order:** Any activity undertaken by the Permittee or others, in a manner that is inconsistent with the NOC Application, and this determination, shall be subject to Ecology enforcement under applicable regulations.
- F. **Obligations under Other Laws or Regulations:** Nothing in this Order shall be construed to relieve the Permittee of its obligations under any local, state, or federal laws, or regulations.
- G. Nothing in this approval shall be construed as obviating compliance with any requirement of law other than those imposed pursuant to the Washington Clean Air Act, and rules and regulations thereunder.

- H. A two (2) month testing and break-in period is allowed, after any part or portion of this project becomes operational, to make any changes or adjustments required to comply with applicable rules and regulations pertaining to air quality and conditions of operation imposed herein. Thereafter, any violation of such rules and regulations, or of the terms of this approval, shall be subject to the sanctions provided in Chapter 70.94 RCW.
- I. An emergency spill plan shall be in place during operation and all operations personnel shall be familiar with this plan. The plan shall be posted at the facility. Any petroleum or chemical spills shall be reported immediately to Department of Ecology, Central Regional Office, (509) 575-2490.

Authorization may be modified, suspended or revoked in whole, or part, for cause including, but not limited to, the following:

1. Violation of any terms or conditions of this authorization;
2. Obtaining this authorization by misrepresentation, or failure to disclose fully all relevant facts.

The provisions of this authorization are severable and, if any provision of this authorization, or application of any provisions of this authorization to any circumstance, is held invalid, the application of such provision to their circumstances, and the remainder of this authorization, shall not be affected thereby.

Any person feeling aggrieved by this ORDER may obtain review thereof by application, within thirty (30) days of receipt of this ORDER, to:

Pollution Control Hearings Board
P.O. Box 40903
Olympia, Washington 98504-0903

Concurrently, copies of the application must be sent to:

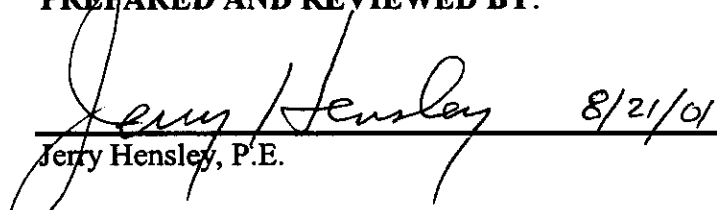
Washington State Department of Ecology
P.O. Box 47600
Olympia, Washington 98504-7600

Washington State Department of Ecology
1315 West Fourth Avenue
Kennewick Washington 99336-6018

These procedures are consistent with the provisions of Chapter 43.21B RCW, and the rules and regulations adopted thereunder.


DATED at Kennewick, Washington, this 21st day of August 2001.

PREPARED AND REVIEWED BY:

 8/21/01

Jerry Hensley, P.E.

APPROVED BY:



Michael A. Wilson, Program Manager